UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

8/17/88

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Dear Counsel:

This is in response to your letter of July 1, 1988, transmitting your comments on E.C. Jordan/Ebasco's Final Draft Detailed Analysis of Remedial Technologies ("DART") and requesting a meeting to discuss those comments.

The comments you have submitted contain several citations to documents and information which have never been provided to EPA. Specifically, your comments cite to "Brown and Wagner, 1987" on p. II - 14, p. III - 23 and p. III - 25 & 26; to "Ron Untermann, GE, personal communication" (p. II - 14); and to "J. Dolfing, H. Harrison and J. Tiedje; unpublished data" (p. III - 22 and A - 3). The "Brown and Wagner, 1987" citations accompany discussions of Dr. Brown's reported analyses of 12 cores from New Bedford Harbor. The two articles published by Brown and Wagner in 1987 and cited in your list of references, in "Environmental Toxicology and Chemistry" and "Science", contain no mention of Dr. Brown's analyses of Acushnet River cores. Because your comments rely substantially on conclusions reached in documents which are not available to EPA, it is impossible for us to evaluate them and to determine whether a meeting would be productive. The information on which you base your conclusions must be submitted to us, before we consider setting up a meeting with you.

EPA and its contractors have already gone to considerable lengths to obtain information on PCB dechlorination, including requests to both General Electric and to yourselves. On February 25,

1987, M. Roger Hathaway of E.C. Jordan wrote to GE asking for technical information on any GE processes for treating PCB-laden sediments. Dr. John Brown of GE responded, noting, inter alia, that he had submitted a report on his research in the Acushnet Estuary to Paul Galvani, and suggesting we contact Mr. Galvani for further information. A copy of Dr. Brown's letter is enclosed.

Subsequently, I wrote to Paul Galvani on May 26, 1987, enclosing Dr. Brown's letter and pointing out that Dr. Brown's letter stated that his research had only been disclosed to EPA "in part", i.e., only to the extent that it had been produced in Aerovox's Requests for Admissions. In addition, in a letter to Paul Galvani dated June 2, 1987, William Brighton made several specific requests for documents cited and relied on in the RFAs but not produced, including "Polychlorinated Biphenyl (PCB) Movement and Transformation in Acushnet River Estuary Sediments, General Electric Research and Development Center (September 26, 1986)". A copy of this leter is also enclosed.

In spite of our requests, these and subsequent documentation have never been provided to EPA. I can only reiterate that EPA cannot consider conclusions based on information which has never been submitted to it, and cannot evaluate whether another meeting with defense counsel is likely to be productive in the absence of this necessary documentation.

Yours Sincerely,

Charles Bering
Assistant Regional Counsel

Enclosures

cc: Ellen Mahan
Nancy Preis
Frank Ciavattieri

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J. F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203

May 26, 1987

Paul B. Galvani
Ropes & Gray
225 Franklin St.
Boston, MA 02110

Dear Mr. Galvani:

This concerns a recent inquiry by E.C. Jordan, Inc., an EPA contractor, to General Electric Company, concerning their research into treatment and destruction techniques for PCBs. E.C. Jordan is studying such technology as part of EPA's Remedial Action/Feasibility Study for New Bedford Harbor. In response to E.C. Jordan's inquiry, G E referred them to John Brown who sent a letter referring E.C. Jordan to you. A copy of that letter is enclosed.

We invite and encourage Aerovox to provide EPA with any information concerning microbial degradation of PCBs you feel we should consider in our Remedial Investigation/Feasibility Study. As you know, EPA is required by §121(b) of the Superfund Amendments and Reauthorization Act of 1986 (SARA) to consider "permanent solutions and alternative treatment technologies...that, in whole or in part, will result in a permanent and significant decrease in the toxicity, mobility or volume of the hazardous substance, pollutant or contaminant." EPA is also required by section 113(k)(2), to "provide for the participation of interested persons in the development of the administrative record on which the President will base the selection of remedial actions." If Aerovox has information which it wishes EPA to consider concerning the destruction or transformation of PCBs through microbial action, it should provide EPA with the necessary documentation for EPA's review and consideration in selection of a remedy. We would also be willing to meet with Aerovox and its experts to allow them to present and discuss their findings.

EPA and E.C. Jordan have received the documents produced by Aerovox in the course of U.S. v. AVX, et al.. However, as stated in Dr. Brown's letter, his research has only been disclosed "in part". EPA cannot consider material which it has not received, and it may not be able to evaluate summary conclusions which are not accompanied by sufficient data and documentation. Thus, you may wish to supply additional documentation for EPA's consideration.

The information you submit will be reviewed in the course of EPA's RI/FS. For your information, EPA's contractor, EBASCO, is requesting the following kinds of information for its assessment of treatment and destruction technology:

Effectiveness. Information is needed to evaluate the effectiveness of a technology in detoxifying/destroying the PCBs in the New Bedford Harbor sediments. Treatment goals for New Bedford Harbor have not been established. Possible goals for the treatment of the sediment are to reduce the PCB concentration in the treated sediments to 50 ppm, 10 ppm, 1 ppm, or 0.1 ppm. Information relative to the ability of, and costs or time for, a treatment process to treat the sediments to these various levels is required. If treatment to these levels is not achievable, information relative to the level to which the PCB-contaminated sediment can be treated is needed. The bench testing should also provide information relative to potential air or water effluents from the treatment technology, or harmful byproducts generated during the treatment of the sediments.

Acceptable Engineering Practices. A technology must be feasible for the location and conditions of the site and, in the case of New Bedford Harbor, must be capable of treating large volumes of sediments, potentially between 10,000 and 1,000,000 cubic yards. The operational reliability of the technology and the difficulty in construction and implementation will be considered. Data from the bench testing may be used during the design of a pilot scale test for New Bedford Harbor.

Cost. Cost data is needed for EBASCO to estimate implementation costs including mobilization, site preparation, equipment, capital costs, operation and maintenance costs, demobilization, closure, and disposal of residues.

Please let me know at your earliest convenience if you would like to submit additional material or would like to arrange a meeting with us as I have suggested.

Yours sincerely,

Charles C. Bering
Assistant Regional Counsel

cc: Bill Brighton
Susan Bernard
Frank Ciavattieri
Al Ikalainen

U.S. Department of Justice

Washington, D.C. 20530

June 2, 1987

Paul B. Galvani
Ropes & Gray
225 Franklin Street
Boston, Massachusetts 02110

Re: United States v. AVX Corp.,
Civ. No. 83-3882-Y (D. Mass.)

Dear Paul:

Aerovox's January, 1987 requests for admission ("RFAs") contain several references to documents which have not been produced to the plaintiffs and which are not otherwise available to the plaintiffs. We therefore request that you provide us with copies of the following:

1) "Polychlorinated Biphenyl (PCB) Movement and Transformation in Acushnet River Estuary Sediments", General Electric Research and Development Center (September 26, 1986). This report is cited in two reports submitted by Aerovox, one by Maxim and one by Eisenreich, and is presumably the report referred to in John Brown's April 16, 1987 letter to E.C. Jordan, a copy of which is attached;

2) all documents recording the analyses and results of analyses of samples to be relied on by Aerovox, including specifically:

   i) the "mass spectra" chromatograms referred to in Aerovox's RFAs 19291, 19301 and 19357;

   ii) all chromatograms and results from the analyses of all standards, and of blanks, duplicates or other quality control analyses accompanying the analyses of the New Bedford Harbor samples, to be relied on by Aerovox, which were taken in the sampling described in RFAs 19287-289 and 20354-373;

   iii) documentation of the dates of the analyses of standards and quality control samples referred to in paragraph ii above;

iv) documentation of the analyses described in RFAs 19290-292;

v) documentation identifying the published values used to identify response factors, as described in RFA 19292;

vi) copies of chromatograms and other documentation of the identification of congener peaks, including all analyses of standards, as described in RFAs 19293-294;

vii) all documentation of new data collected during the investigation referred to in RFA 19301 and not included in "Appendix A", including "SP 2250/SP 2401" gas chromatograms and GC-MS ion chromatograms;

viii) all documents recording the use of Aroclor standards to define values for "indicator peaks" as described in RFA 19300, including documents showing what Aroclor standards were used and where they were obtained, and all documentation of the calculations described in RFAs 19299 and 19300;

ix) all chromatograms, protocols and other documentation relating to the analyses referred to in RFA 20375, including chromatograms of analyses of standards, blanks duplicates and any other QA/QC analyses; documentation of the values, and documentation of the dates on which such analyses were conducted;

3) The computer codes used by ASA in the studies on which Aerovox intends to rely, described in the summaries attached to Aerovox's RFAs in July, 1986 and January, 1987, both in the form of a hard copy listing, and a computer compatible form (either on floppy disks or on tape);

4) "Figure 2.40", referred to in the list of figures in the January, 1987, ASA report as being on Page 54, but not printed on that page or anywhere else in the report;

5) Records of the measurements, calculations and activities referred to in RFAs 19515-581;

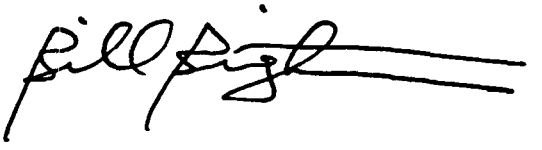
6) Documentation of the investigation described in Aerovox's RFAs 19889-902; and

7) The title and publisher of the reference in RFA 19211, "Herkullet and Kimeldorf (1977)".

I look forward to hearing from you.

Sincerely yours,

Assistant Attorney General
Land and Natural Resources Division

By: 

William D. Brighton
Attorney
Environmental Enforcement Section

cc: Susan Bernard
Charles Bering

GENERAL ELECTRIC

CORPORATE RESEARCH AND DEVELOPMENT
GENERAL ELECTRIC COMPANY • RESEARCH AND DEVELOPMENT CENTER • P.O. BOX 8 • SCHENECTADY, NEW YORK 12301 • (518) 387-7987

April 16, 1987

Mr. Roger Hathaway
E.C. Jordan Co.
261 Commercial St.
P.O. Box 7050
Portland, ME 04112

Dear Mr. Hathaway:

Dr. Unterman has asked me to reply to your letter of February 25, 1987 requesting technical information on any GE processes for treating PCB-laden sediments.

During the past decade GE has spent over $10 million on microbiological and environmental research aimed at the ultimate development of microbiological processes that could be used for either destroying or detoxicating the PCB residues in soils and sediments. Some of this work has already appeared in the primary technical literature (i.e., is available as fairly compact reprints); some is only available in the form of progress reports or preprints (which are much more voluminous); some still exist only as the investigators notes. None of this information is being held as company proprietary; however, some is being considered as possible evidence in lawsuits, and the attorneys involved have asked that requests for such items be channeled through them. The most compact summary of our overall program that is currently available is the 63-page Progress Report dated June, 1986, which I attach. I also include a draft (not for release) manuscript that will appear in Science in about a month.

Since these reports were written, work has proceeded in a couple of areas that will be of particular relevance to your concerns. First, we have undertaken an EPA-supervised assessment of the feasibility of decreasing the PCB level in the soil at a spill site near South Glens Falls, NY by the direct application of cultures of PCB-degrading aerobic bacteria. Site preparation work and the development of procedures for producing the necessary cultures in 55-gallon batches are now complete; the tests will begin this spring as soon as the site thaws out and will run through the rest of the year. We anticipate that the primary outcome will be information on the impact of factors like bioavailability, weather, harrowing, etc., on biodegradation kinetics under actual field conditions.

Second, we have continued to seek out and characterize sites where PCB dechlorination is occurring in nature. This has led to the discovery of one or more very closely related dechlorination processes (designated Process H, H', etc.) that are occurring in marine sediments. These Process H sites include all of the upper (but not the lower) Acushnet estuary; one of the two

represented by sediment samples received from Escambia Bay (near Pensacola, FL); and probably some unidentified spill site near the west end of Brooklyn, NY (judging from fish samples), but not the rest of the New York Harbor area. My current estimate is that the half-time for the elimination of the more easily dechlorinated (and more toxic) PCB congeners is about 3 years in upper Hudson sediments, about 7 years in those of the upper Achusnet estuary, and about 10 weeks in a flooded Japanese rice paddy. Hopefully, anaerobic microbiological studies now underway at Michigan State in Jim Tiedje's group will tell us why the process is going so fast in the paddy soil, so slowly in lightly contaminated sediments, and at intermediate rates in places like the upper Acushnet. And also what, if anything, should be done to speed up the process. In view of the fact that PCB detoxication is already going on at a fair rate in the Acushnet sediments, it might be better to leave them undisturbed.

To summarize the present situation, our research work has gone very well, but has produced--and is continuing to produce--many scientific surprises as to the nature of the interactions between environmental microbes and PCBs. These findings indicate the likelihood that practical, low cost microbial procedures for dealing with PCB-laden sediments will eventually emerge; however, we're not yet ready to write the specifications for any such process and promise the world that it will work. What we have been advising the agencies is to hold off on major engineering efforts to move PCB-laden sediments from one spot to another until there is better understanding of the options available for microbially detoxicating the PCBs either in place or in the ultimate disposal area.

The results of our investigations of the Acushnet estuary dechlorination system are described in a rather voluminous draft report that we've sent to Mr. Paul B. Galvani (of Ropes and Gray in Boston; phone 617-423-6100) attorney for Aerorox, and which he has passed on in part to the attorneys representing the State and Federal agencies. I expect to be presenting a more refined version of the report at the Society for Environmental Toxicology and Chemistry meeting in November, but won't have it written up until fall. Meanwhile, I'd suggest that you contact Mr. Galvani for whatever technical details you need.

Sincerely,

John F. Brown, Jr.
Manager-Health Research
CORPORATE RESEARCH AND
DEVELOPMENT

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